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THERAPEUTICS OF THE GOUTY DIATHESIS.

*From a Lecture
delivered in the Polyclinic Evening Lecture Course,
March 12, 1889.*

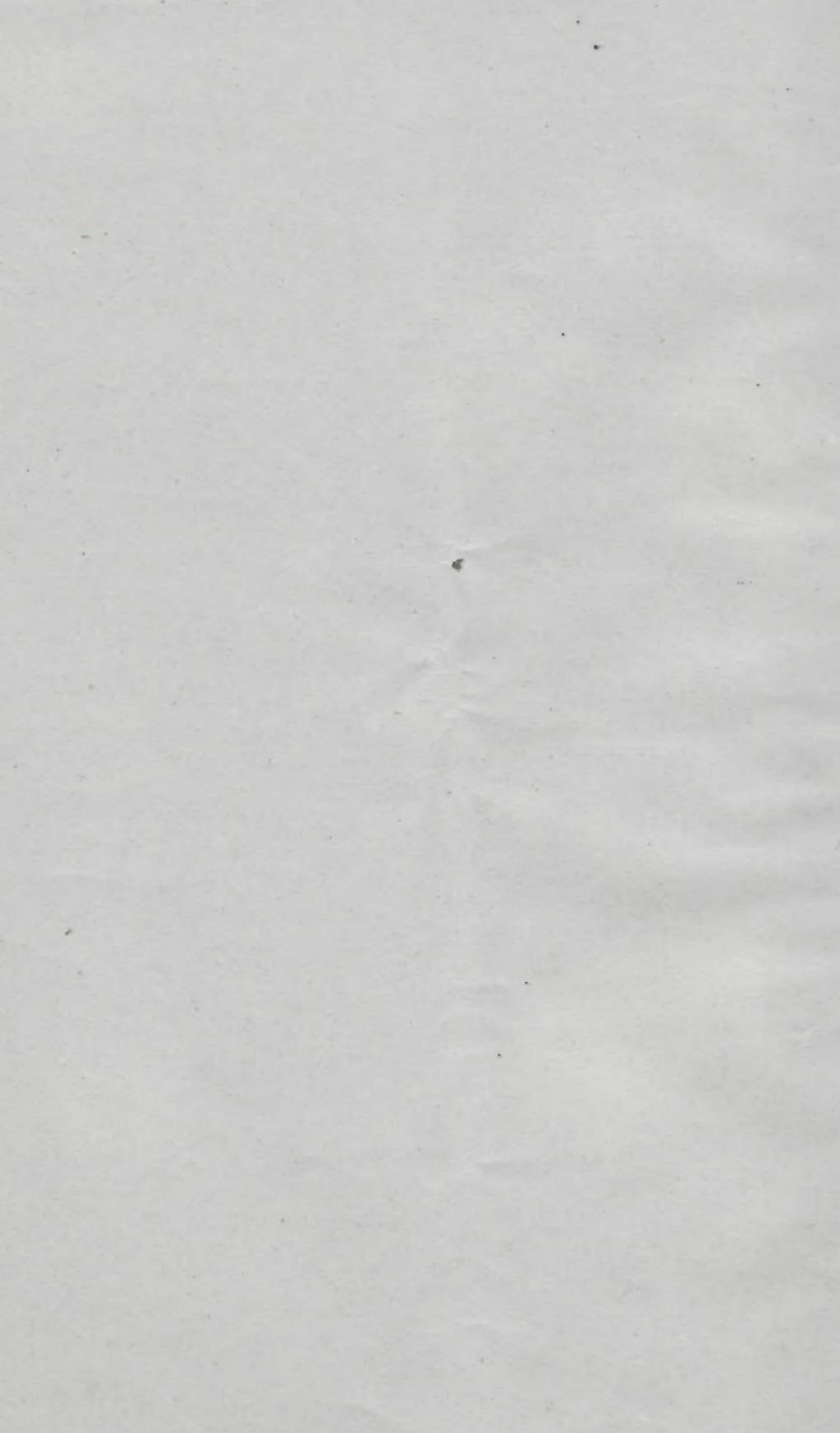
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RECOGNIZING from the facts we have thus far considered, that it is not a disease—not a sudden or a gradual departure from the usually normal action of the organism—that we are dealing with; but that it is, if I may be permitted the expression, an abnormal normality; that is to say, an inherent departure of the individual organism from the typical action of like organisms; we see that our treatment is of necessity directed to permanent conditions, and must be of a permanent character. Our aim then, is not so much to alter the action of imperfectly functioning organs—though this must be, to a certain extent, part of our plan—but so to arrange the materials upon which that action is performed, and so to deal with the resultant products as to obviate the further disturbances of the economy arising from the presence in the circulating medium of irritant or toxic matters, or of matters not directly toxic, but still negatively harmful by their exclusion of others needed to promote proper function, or of matters detrimental to general health, by throwing an added burden upon excretory organs to secure their removal.

Repeating then, that it is not "gout," not the storm of diseased action finding its vent in articular inflammation with febrile reaction, which we are now considering, but the "gouty diathesis," the inherent tendency on the part of certain organisms to depart from the normal type of their kind, in the functions particularly of secretion and excretion, and, to a certain extent, of respiration; a tendency not confined to any one organ or set of organs, but influencing more or less markedly every cell of the body, and, in particular, muscles and blood-making and depurating organs; let us see what are the particular objective points of therapy, and in what manner these can be best secured.

Through the teachings of the greatest biologist of the century, we have come to recognize that life is maintained by a continual adjustment of the parts of the organism to each other, and of the organism as a whole to its environment; and as a corollary that a perfect, harmonious adjustment constitutes health, an imperfect, discordant adjustment constitutes a want of health. If every departure from ordinary action of one organ was met by a compensating departure of other organs, and in such a manner as not to impair the harmony between the whole organism and its environment, then such departures would not constitute disease. It is, therefore, theoretically conceivable that the failures of assimilation and excretion, which we collectively group under the title "gouty diathesis," can be completely harmonized by automatic action of the organism, and be consistent with a state of perfect health. Practically, however, the conditions requiring adjustment are so numerous and so involved that while in a great many instances comparative health is maintained for prolonged periods, sooner or later a variety of disturbances, more or less marked and more or less serious, are brought about; so that it is important to impress upon the patient that the condition, be it what it may,

for which he seeks relief, is not a temporary matter to be cured by temporary expedients, but the sign of a profound organic alteration, and as such demanding permanent attention. The first point in therapy then, is to gain the intelligent coöperation of the patient.

We must next endeavor to determine to what extent the organic alteration of tissues and functions has been developed in the individual case before us; and in how far this is removable, and in how far it is a permanent life-condition. This is an extremely difficult problem, and can only be solved by careful study of all the symptoms, the temperament, general physical condition, and, as far as can be learned, the personal and family medical history of the patient. It does not fall within our present limit to discuss this extremely interesting question of therapeutic diagnosis. We must assume that it is determined, and choose a representative case as illustrative of the general course to be pursued; with such modifications in other cases as individual conditions may indicate.

Suppose then, that we have decided—as in a case I now have in mind, and of which I will endeavor, for the sake of a concrete example, to present in brief the salient characteristics—that there is a congenital tendency to the over-production of uric acid and to excessive waste of phosphated tissues—a conjunction extremely common—that can never be entirely overcome; but that the results of this tendency are greatly aggravated by the mode of life of the patient and by his mental characteristics. We have first to remove the removable, remedy the remediable; that is to say, reduce the nervous wear and tear and in general alter our patient's mode of life to harmonize with the impaired structure he has inherited. This being done, we must endeavor to secure prompt elimination of the excess of uric acid, whose formation

we cannot altogether prevent, and also to check the excessive waste of phosphates and repair their loss.

The patient is an attorney in active practice, of middle age and of nervo-sanguine temperament. A hard student, he takes but little physical exercise—perhaps walks to his office in the morning, if he rises early enough—but is, as a rule, a late riser, because he always goes late to bed. His breakfast, he says, is “light,” because he has little appetite in the morning; but the dish of oatmeal, or some porridge equally difficult of digestion, is always eaten. His luncheon at a restaurant is in reality a more than sufficient dinner. It is eaten none too leisurely, and immediately thereafter he rushes back to his business. In the evening his dinner at home is an elaborate meal, to which a sufficient time is devoted; after which, however, he feels heavy and oppressed. Nevertheless, he will frequently devote his night, sometimes into the small hours, to reading and writing; or if he has gone to the theatre or some social affair, take up his books and papers on returning home.

At breakfast, then, this man eats too little, at luncheon and dinner a great deal too much, his physical exercise is insufficient, his mental exertions too great. In addition, the character of his food is entirely unsuited both to his inherited constitution—his father was the subject of gout—and to his mode of life. He does not need much animal food, for he makes little demand upon his own muscular apparatus; and while we cannot hold strictly to Liebig's classification of foods into tissue-formers and heat-producers, there can be little doubt that nitrogenous foods, as a rule, are devoted to tissue-formation and to the furnishing of those explosive compounds by which muscular activity can be suddenly liberated in response to nervous impulse. It is also true, within certain limits, that nitrogenous foods increase the formation

of urea and uric acid, a tendency we desire to restrict and modify.

Yet meats of various kinds form absolutely the greater part of our patient's diet. Furthermore, his inactive life does not make very great demands for heat as a source of mechanical action. Beyond that necessary to supply the force required to keep up the functions of organic life, and a little extra demand for increased cerebral circulation, he needs no particular store of heat-producing elements. Of the carbohydrates, besides, sugar is a direct excitant of uric acid formation; therefore, this must be cut off entirely, and the starches easily converted into sugars reduced to a minimum. On the other hand, the great waste of phosphates, due to congenital tendency and to excessive nervous action, needs repair, and a sufficient amount of fat, of hydrocarbons, must be taken to enable the economy properly to perform its functions with the least possible expenditure and friction. The fat is useful not only as a heat-producer, but in another way. It would, of course, be an extremely crude and inaccurate view of nerve-tissue formation to represent it as a mixing of phosphates and fat—yet nerve tissue is largely phosphorized fat, and by whatever processes of metabolism its structure is built up, consumed, and renewed, I am sure, from clinical observation in just such cases as the one in point, that fats and phosphatic foods do assist in giving it proper tone and diminishing its waste. The good effects of cod-liver oil and of the hypophosphites in improving the nutrition of phthisis, must be in great measure attributable to improvement of the trophic nervous system.

But there are, in addition, other and more easily demonstrable reasons for diminishing the amount both of meat and of sugar and starchy foods, than those already suggested.

The vertigo, the disturbances of vision, the headache,

the inability to concentrate attention upon his work, the throbings, the pains here, there, and elsewhere, the disturbance of the heart rhythm, the condition he terms "torpidity of liver," for which the patient seeks relief—that condition, in a word, which tortures the patient with dread of impending mental failure, and which by physicians is so often carelessly mistermed "neurasthenia"—is to be ascribed not alone to the overloading of the circulation with uric acid, but also to direct and indirect impoverishment of the blood, from faulty assimilation due to failure of digestion. Too great a demand is made upon the digestive apparatus, and the energies that should be directed to other work are called upon to prepare an amount of food far beyond that necessary for purposes of force-production or tissue-building. The work is not done properly; and, as a consequence, the system suffers both from lack of the products of perfect digestion and from overplus of the products of imperfect digestion. Therefore, we must diminish the absolute quantity of food consumed, and must so regulate its quality as to produce the greatest amount of force with the least possible expenditure.

We must, in addition, cut off those elements which, if undigested, are liable to undergo acid fermentation, thus increasing uric acid production. It is a mistake, I think, except in the worst cases, to interdict meat completely. We can allow one kind of meat at one meal, daily; giving the preference to "white meats," but not absolutely excluding butchers' meat. We must insist upon proper cooking—that is, broiling, roasting, or boiling; not too "well done" in the former methods, and not "done to rags" in the latter. Fish can often take the place of meat with advantage. Bread must not be used in excess, and gluten bread, or that made from the whole wheat and retaining the phosphates, is preferable to our ordinary white bread. Pastries and sweets are to be for-

bidden. Potatoes, turnips, cabbages, and similar starchy vegetables should be cut down to the lowest point, or, better, avoided altogether. Rice, well cooked, may be allowed in moderation. Green vegetables, lettuce, celery, cresses, spinach, asparagus, and the like, may be partaken of judiciously, unless any one of them should give rise to unpleasant symptoms—so, too, the legumens, peas, beans, lentils; preferably in the form of *purée*.

Fruits, if not too acid, may be used freely. If any particular fruit is found to cause indigestion, or to give rise to gouty manifestations, it should be interdicted. Patients are often markedly idiosyncratic in the matter of fruits, and it is impossible to lay down exact rules.

Fat, in the form of butter, cream, oil, or meat fat, should be used in moderate amount. Even in the obese, as Ebstein has more particularly insisted upon, it is a mistake to cut off fats entirely. The quantity must be governed by circumstances; the amount of work done by the patient and the extent to which we are substituting hydrocarbon for carbohydrates must be considered and the results observed. Some careful experiments by Ebstein show that, up to 120 grammes of butter daily, the amount of uric acid excreted by a healthy man was rather diminished than increased by the consumption of fat.

Fluids, and especially water, should be used freely. To speak first of nutritive fluids, milk should be substituted for meat to some extent, and, perhaps, as some claim, absolutely in the worst cases, though personally I have not found it necessary to insist upon entire abstinence from flesh. The so-called "milk-cure" of gout is a delusion and a snare. An exclusive milk diet will harm rather than benefit our lithæmic patients. It is important in these and all other cases that milk be properly used. It must not be gulped hastily, ice-cold, to check digestion and to coagulate into a great tough curd

requiring hours for resolution. Sipped slowly, so as to form minute coagula through which the digestive juices can readily penetrate; and, preferably lukewarm, so as not to lower digestive temperature, the fancied "disagreement" of milk with many patients will not be manifested. From one pint to three pints daily may be taken according to the quantity of other foods permitted. Soups, if not too thick—that is to say, *bouillon* rather than "stock"—should always precede at the principal meal of the day. Like the beef-tea of the sick-room, this is rather a gentle stimulant to the peptic glands than an aliment, and it furnishes also a quantity of warm fluid to help the solution of other aliments. It is almost unnecessary to say that cold water must not be taken with meals. The use of hot water at meals if must be, but preferably an hour before meals, is of signal advantage in gouty dyspepsia.

While excess is injurious, even in the use of water, and while it is beyond question a mistake constantly to overload the vessels, yet a certain amount of flushing at intervals gets rid of noxious accumulations and gently stimulates the kidneys, the skin, and the intestinal glands and mucous membrane to the work of excretion, which it also facilitates by suspension or solution of the offending matters. It reduces in this way the danger of calculous concretions. I am sure that much of the benefit from certain vaunted mineral waters is due as much to the H₂O as to the salts held in solution. The same thing may be said of certain medicinal infusions and decoctions—the real "active principle" is hydrogen monoxide.

When we cannot induce patients to drink water, or when the ordinary drinking-water of the locality is noxious, we can then appropriately order some alkaline spring-water. And this brings us to the question of the administration of alkaline remedies. I can only reëcho the advice of Ebstein—they are to be "used, not abused."

Even moderate doses of alkalies are badly borne by some patients; and some require the concurrent administration of a ferruginous or bitter tonic. Carbonates, acetates, citrates—that is to say, salts of vegetable acids—should be employed. Lithium has a preëminent reputation, but I cannot say that it is altogether deserved. I think I have seen equally good results from potassium salts; but ammonium and sodium salts, especially the latter, should, as a rule, be avoided, as having a certain tendency to produce insoluble compounds. Very often it may be found that a combination of two alkalies—for instance, lithium citrate, say ten to fifteen grains dissolved in *liquor potassii citratis*, say two fluidrachms—will give better results than either salt singly.

I have not observed better results from lithium-sodium-benzoate than from lithium and potassium citrates or the potassium carbonates. Potassium acetate, as a rule, does not seem to be equal to the other vegetable-acid salts, though it is an extremely difficult matter to decide positively between the various alkaline medicaments. Lithium salicylate is often of decided benefit, especially where vague myalgia, so-called "muscular rheumatism," has been present. Probably better results are to be obtained by varying the particular drug employed than by constant use of any one salt or of the salts of any one base. I have not seen any great benefit from colchicum in the gouty diathesis, though its value in acute gout cannot be denied.

There are other points in the medicinal treatment which may be more appropriately taken up after a few further matters connected with the regimen of our patient have been considered. He drinks "moderately." But even "moderate drinking" is an excess for a person of gouty inheritance. If possible, we must cut off alcohol entirely. If necessary, the change may be gradual. Malt liquors and sweet wines must be ab-

solutely prohibited in any event. The least injurious alcoholic beverages in these cases are spirits (whiskey, brandy, or gin), and light dry or sour wines.

Exercise, appropriate in its quality and quantity, must be, not vaguely advised, but definitely prescribed. In the prescription of exercise careful judgment is necessary. We must consider not only the patient's physique, but also his occupation, means, and surroundings, and endeavor to give advice capable of practical application, with the least disarrangement to his affairs. Where time and purse permit, horseback exercise, in moderation, is probably best of all. Bicycle or tricycle riding will sometimes answer as well, and is, indeed, an admirable exercise. Open-air walking is within reach of all. In all these the patient, if unused to active exercise, must begin with very little exertion and gradually increase. Where a long and thorough rest can be had after exercise, and where the skin, intestines, and kidneys are in vigorous function, it is well to push it to the point of fatigue; but in the majority of cases it is better to stop short of that point. I have, however, seen excellent results from fatiguing exercise persisted in daily, at intervals, for short periods, a week or ten days at a time.

The use of dumb-bells and other calisthenic measures at home is inferior to open-air walking or riding, but may be associated with the out-door exercise.

As to the matter of baths, opinions differ greatly. Cold bathing is lauded by some, and condemned by others. In this, as in many other instances of disagreements as to therapeutic measures, the fault lies in exclusive regard being paid to the two extremes of a problem, disregarding the very important connecting mean. In other words, we have to consider not an abstract pathological condition or complexus and an abstract remedial action, from which factors we may, as in pure mathematics, deduce an equally abstract and theoretically exact conclu-

sion; but we must also consider the very concrete patient in whom the pathological condition is present, upon whom the remedial action is to be exercised and in whom the result is to be practically manifested. Empirical observation, guided by rational forecast, must then be the determining factor of the problem. In the patients of sanguine, or nervo-sanguine, or even bilious-sanguine temperament, whose robust condition leads us us expect prompt reaction from cold bathing, it may be judiciously advised; and if it produces an agreeable glow with a general feeling of exhilaration, should be continued. On the other hand, it will probably be injudicious in weak or run-down persons, or in those of lymphatic or bilious temperament; and in any case in which it fails to produce an agreeable and stimulating reaction, should not be practised. It is important, however, in all cases to keep the skin in active function. Where cold bathing is ill-advised, lukewarm baths should be frequently taken, and Turkish or Russian baths, if well borne, at intervals of three or four weeks or more, according to indications.

The intestinal functions must also be kept at a proper pitch of activity, not alone that digestion may be properly performed, but that auto-intoxication with leucomaines may not assist the general depressing influences. An occasional saline laxative, Rochelle salts preferably, may be used in case the mineral water habitually or occasionally employed is devoid of mild purgative effect. In some cases, especially where the liver is markedly at fault, probably in a condition of venous congestion, with more or less catarrh of the bile ducts, the acid phosphate of sodium, with an occasional mercurial, will be found to serve a good purpose. Habitual use of active saline or other cathartics, or drastic purgation at any time, is to be deprecated. If there is intestinal atony, or lack of secretion, the remedies usually employed for these conditions,

nux vomica, belladonna, rhubarb, euonymin, and the like, may be resorted to in appropriate combinations.

One other remedy, or class of remedies, addressed to the general condition should not be forgotten. At first sight it would appear to be theoretically contraindicated, but at all events there is agreement as to its good effect empirically; and hence there can be no sound theoretic objection. The fault lies in any theory which fails to agree with good practice. This class of remedies is that of the mineral acids, preferably phosphoric or nitric acid; given well diluted in small doses, just before or during meals. While I cannot agree with the opinion that nitric acid, for example, is a direct oxidizer, and while the actual amount of oxygen that could be liberated from the few drops of nitric acid taken into the system would be in itself of no value, yet I have no doubt from clinical observation that this agent not only assists digestive action, but really does, in whatever way, chemical or dynamical, stimulate general oxidizing processes. It may be like the first push to a row of bricks that causes all to topple—initiatory of general oxidation. Surprising improvement often results from its use in so-called neurasthenic patients—in reality the dyspeptic subjects of the gouty diathesis. The inhalation of oxygen would seem to be theoretically indicated. As a rule, a healthy man in moderate physical activity inhales in the air more oxygen than his blood can appropriate. Nevertheless, in some conditions of ill-health, and in the gouty diathesis especially, the occasional filling of the pulmonary cavity with pure oxygen seems to induce greater absorptive activity, whether mechanically or chemically I cannot state. This measure, or the inhalation of compressed air, may then be appropriately employed at times, though such methods can never replace open-air exercise and should not be allowed entirely to substitute the latter.

In the particular case which has served as a thread upon which to string our therapeutic observations, the following treatment was pursued. It will be remembered that the prominent symptoms were vertigo, headache, and confusion of ideas. A large dose of Rochelle salts was ordered for immediate effect, and free purgation with smaller doses continued for a few days, when a pill of euonymin and nux vomica was substituted. For disciplinary purposes, a strict diet of skimmed milk was instituted, the other allowable foods being gradually added. Thus the patient was led to regard as a liberal diet, that against which he would in the first instance have rebelled. As much rest from business as pressing affairs would permit was recommended, and the time thus gained devoted to moderate open-air exercise, walking, and riding.

Warm Carlsbad water slowly sipped before breakfast and before dinner, and the mixture of potassium and lithium citrates three times daily, between meals, was prescribed at first; and with the disappearance of the brick-dust sediment from the urine, dilute phosphoric acid at meals was substituted for the mixed alkalies. The habitual use of the Carlsbad water was recommended. Cool bathing, sea bathing, and occasional Turkish baths were prescribed, at appropriate seasons. Improvement was rapid, and the patient will probably be comfortable as long as he obeys orders.

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